REMARKS

Claims 1-16 are pending in the application. Of these, claims 2 and 4-16 are withdrawn from consideration. Claims 1 and 3 are rejected.

I. Status

Under "Status" on the Office Action Summary Sheet, the Action is indicated as being both Final and Non-Final. PAIR indicates that the Office Action is Non-Final. Applicants respectfully request the Examiner to formally acknowledge that the Action dated September 11, 2006 is Non-Final.

II. Response to Claim Rejections

Claims 1 and 3 were rejected under 35 U.S.C. § 102(b) as allegedly being anticipated by or, in the alternative, under 35 U.S.C. § 103(a) as allegedly being unpatentable over Iijima et al (U.S. Patent No. 4,226,915) or Rosenski et al (U.S. Patent No. 5,319,020) for the reasons of record.

In paragraph 5 of the Office Action, claims 1 and 3 were rejected under 35 U.S.C. § 102(b) as allegedly being anticipated by or, in the alternative, under 35 U.S.C. § 103(a) as allegedly being unpatentable over Kunihiro et al.

A. Regarding Iijima et al

In the Amendment under 37 C.F.R. § 1.114(c) filed July 26, 2006, Applicants urged that the transitional language "consisting essentially of" excludes the adhesive composition of Iijima containing a low-molecular weight polyethylene glycol and polypropylene glycol, for example, as essential components. In support thereof, Applicants reproduced Example 1 of Iijima

containing 15 % by weight glycerin as the low molecular weight polyol and compared to a composition in which no glycerin was added to demonstrate that the presence of the glycerin interferes with the composition's wet surface adhesive force, namely, a basic and novel characteristic of the invention. In the "Response to Arguments" as set forth in paragraph 7 at page 4 of the Office Action, the Examiner did not consider the Declaration evidence to be persuasive, noting that Iijima only requires as little as 3 % by weight of a water-soluble polyol.

In response, Applicants reiterate that amended claim 1 which is directed to an adhesive composition consisting essentially of a polyalkylene glycol having a weight-average molecular weight of from 100,000 to 3,000,000 in a specific amount of an acrylic polymer excludes the adhesive composition of Iijima containing a low-molecular weight polyethylene glycol and polypropylene glycol, for example, as essential components. To demonstrate that such components in the amount taught by Iijima et al would adversely affect the basic and novel characteristics of the present invention, the inventor has carried out an additional replication experiment wherein glycerol (as a water-soluble polyol) is added in 3% by weight and the results are provided in the attached Supplemental Declaration. Further, to demonstrate that different kinds of acrylic polymers give similar results, three kinds of acrylic polymers with different compositions have been adopted to the experiment.

As can be seen in the attached Supplemental Declaration, the presence of a water-soluble polyol having a molecular weight of 1,000 or less, which is an essential component in the formulation of Iijima et al, deteriorates its wet surface adhesive in an amount as small as 3% by weight.

Specifically, the wet-surface adhesive force in the example of the present application has values ranging from 0.5 to 0.6 N/18-mm width. On the other hand, as shown in the Table at page 6 of the Supplemental Declaration, the result of Comparative Experiment 1 using 3% by weight of glycerin based on using the same polymers as in Example 1 of Iijima et al gives low values. As a cause for such result, glycerin, i.e., a water-soluble polyol added to each system is regarded as having an adverse effect. Since the water-soluble polyol has a low molecular weight, it is adsorbed on the surface of the emulsion particles, covering the particle surface. Under such conditions, the hydrophilic component (i.e., the water-soluble polyol) is also present on the surface of the pressure-sensitive adhesive. Thus, the moisture owing to dewing on the surface of the adherend will not be adsorbed into the interior of the pressure-sensitive adhesive since it is energetically stabilized at the pressure-sensitive adhesive-adherend interface. In this connection, due to the presence of a water layer at the pressure-sensitive adhesive-adherend interface, the wet-surface adhesive force gives a low value.

The same conclusion can be derived from the results of Comparative Experiments 2 and 3 of the present application. On the other hand, only in the case of high-molecular weight poly(alkylene glycol) defined by the present application, the glycol exists in an aggregated dispersed state without covering the particle surface since it has a high molecular weight (see Figure 1 attached to the Supplemental Declaration). Since these portions are particularly likely to absorb water, and are not present at the surface of the pressure-sensitive adhesive, the moisture due to dewing becomes energetically unstable at the interface between the adherend and the pressure-sensitive adhesive, thus being absorbed into the interior of the pressure-

sensitive adhesive. As a result, the water content at the interface between the adherend and the pressure-sensitive adhesive reduces to enhance wet-surface adhesive force.

As previously pointed out, the present invention also differs from Iijima's invention in that, in the present invention, a specific polyalkylene glycol alone can be incorporated into a specific acrylic water dispersion type pressure-sensitive adhesive to provide the effects of the invention.

Iijima describes that "when a water-soluble or water-swellable polymer alone is incorporated in an adhesive, a small moisture permeability can be imparted to the adhesive layer, but even if such a polymer is incorporated in a large quantity, an adhesive layer having a good moisture permeability cannot be obtained" (see column 2, lines 55 to 61). This passage instructs that Iijima's "polyethylene oxide with a molecular weight of 300,000 or more" or the like, which corresponds to Iijima's water-soluble or water-swellable polymer, is never used alone.

More specifically, Iijima discloses that the water-soluble polyol disclosed therein contains polyethylene glycol having a molecular weight of 1,000 or less and polypropylene glycol with a molecular weight of 1,000 or less (see column 3, lines 42 to 51). In addition, Iijima discloses that the water-soluble or water-swellable polymer contains polyethylene oxide with a molecular weight of 300,000 or more (see column 3, lines 57 to 63). Surely, Iijima's polyethylene glycol and polypropylene glycol are outside the molecular weight range of present claim 1, i.e., from 100,000 to 3,000,000.

Regarding the difference between Iijima's polyalkylene oxide and Applicants' claimed polyalkylene glycol, Applicants comment as follows. Generally, polyalkylene oxide

(polymerization of ethylene oxide) is designated as having a molecular weight larger than that of polyalkylene glycol (polymerization of ethylene glycol). Thus, Iijima's polyethylene oxide having a molecular weight exceeding 300,000 with no specified upper limit as set forth at column 3, lines 62-63, is not necessarily the same as the claimed polyalkylene glycol having a molecular weight of from 100,000 to 3,000,000. That is, the molecular weight of Iijima's polyethylene oxide could well be in excess of 3,000,000.

Further, although Iijima discloses that the polyethylene oxide has a molecular weight of 300,000 or more, no basis for this molecular weight range is set forth, and no such polyethylene oxide is used in the examples, either. Thus, Iijima provides no disclosure as to the advantage of that range, which notably is an open-ended range.

Moreover, Iijima relates to a pressure-sensitive adhesive which is moisture permeable, with which skin eruptions or irritation is scarcely caused. Iijima has an object as well as a design concept different from those of the pressure-sensitive adhesive of the present invention which simultaneously satisfies initial adhesion to already dewy surfaces and constant-load peeling property from the beginning.

In summary, a distinct difference between the present invention and Iijima et al is that Iijima et al essentially requires the addition of a low molecular weight water-soluble polymer. The test results presented in the Supplemental Declaration show that the presence of the low molecular weight water soluble-polymer of Iijima adversely affects the basic and novel characteristics of the present invention, such that the amendment to claim 1 employing the transitional language "consisting essentially of" excludes the adhesive composition of Iijima et

al.

Regarding the Examiner's second point that the Declaration is not commensurate in scope with the claimed acrylic polymer, Applicants submit that one of ordinary skill in the art would expect similar results for acrylic pressure-sensitive adhesive compositions in general as well as for rubber-based compositions as recited in withdrawn claim 2. This is because of the restriction of the molecular weight as well as the incorporation method of the hydrophilic polymer.

Thus, in view of the above, and in view of the previous Amendment and the arguments presented therein and Declaration submitted July 26, 2006, each of which are incorporated herein by reference, it is clear that the present invention is not anticipated not rendered obvious by Iijima et al.

B. Regarding Rosenki et al

The basis for rejection is that the claimed adhesive composition is unpatentable over the prior art adhesive composition prepared by a different process, absent evidence that the particular process of making (i.e., whereby the polyalkylene glycol is incorporated into the composition after polymerization of the acrylic polymer) results in a materially different product.

In the "Response to Arguments" in paragraph 8 at pages 4-5 of the Office Action, the Examiner did not consider the Declaration evidence to be persuasive for the reason that Applicants did not faithfully reproduce the prior art.

In response, Applicants reiterate that the present invention is distinguishable from Rosenski et al. Claim 1 of the present invention recites that the polyalkylene glycol is

incorporated into the composition in the form of an aqueous solution after the polymerization of the acrylic polymer, whereas in Rosenski et al addition occurs during polymerization.

Rosenski is characterized by emulsion-polymerizing monomers in the presence of a polyalkylene oxide plasticizer, while in the present invention, polyalkylene glycol is incorporated into the composition after polymerization.

More specifically, in Example 4 (column 8), Rosenski describes that "in the case where PEG with a molecular weight of 8,000 is added to an emulsion after polymerization, adhesive property is not imparted by the post addition of PEG". That is, Rosenski teaches away from the present invention in that addition of a polyalkylene oxide after polymerization in Example 4 of Rosenski sets forth an embodiment in which the desired effect is not achieved.

In contrast, according to the present invention, the polyalkylene glycol is incorporated in the form of an aqueous solution after the polymerization of an acrylic polymer, in order not to adversely affect the polymerization of an acrylic polymer. Namely, incorporation of the polyalkylene glycol in the form of an aqueous solution after polymerization of the acrylic polymer is a significant key factor for exhibiting the effect of the present invention. Concerning this aspect, the technique of the present invention and that of Rosenski are entirely different from one another.

Incorporating the polyalkylene glycol after polymerization of the acrylic polymer results in a difference in chemical structure, which difference in structure provides a composition having properties and an effect different from the composition of Rosenski.

Concretely, in Rosenski, the adhesive "monomers are polymerized in the presence of a

water-soluble polyalkylene oxide polymer" (column 3, lines 54-57). That is, Rosenski uses the polyalkylene oxide polymer as a plasticizer *during the adhesive polymerization process*. The resulting polymer will then have a chemical structure different from that of the claimed invention where the polyalkylene glycol is incorporated after polymerization of the acrylic polymer.

This difference in mode of addition also affects the polarization reactivity, thus resulting in a failure to exhibit good initial adhesive force to a dewy surface as shown in the attached Supplemental Declaration.

Regarding the Supplemental Declaration, Applicants have conducted an additional replication experiment by matching the functional value of carboxylic acid to that of Example 1 of Rosenski et al and by using the materials within the ranges taught by Rosenski et al.

Specifically, in the Declaration submitted on July 26, 2006, 'dioctyl maleate' was used as an alternative for 'monooctyl maleate'. But, as a more appropriate alternative from the viewpoint of the functional value of carboxylic acid, 'acrylic acid' was used as explained in the attached Supplemental Declaration. Moreover, as regards the other materials used for the replication experiment, those equivalent to the materials as set forth in Rosenski et al are used.

As shown in the Table at page 12 of the Supplemental Declaration, the wet-surface adhesive force of the product obtained from the replication of Example 1 of Rosenski et al resulted in a low value. The reason is that, since polymerization is conducted under the state where the polyoxyethylene plasticizer is incorporated, the polyoxyethylene plasticizer is adsorbed on the particle surface. And even when the materials are fabricated into a tape, the plasticizer exists in the surface of the pressure-sensitive adhesive, raising the hydrophilic nature

of the surface of the pressure-sensitive adhesive, whereby, when the tape is laminated with the wet surface of an adherend, moisture exists between the adherend and the surface of the pressure-sensitive adhesive energetically stably. Namely, the moisture is not absorbed into the interior of the pressure-sensitive adhesive, resulting in a low wet-surface adhesive force.

In the present application, the objective is achieved by restricting the lower limit of the hydrophilic polymer to 100,000, and further by adding the polymer after polymerization, thus suppressing the migration of the hydrophilic polymer to the surface of the pressure-sensitive adhesive.

Additionally, Rosenski does not teach the exact molecular weight recited in the present claims. Rosenski teaches the use of a polyalkylene oxide plasticizer with a molecular weight of larger than 3, 000, and preferably greater than 5,000 but has no description of the molecular weight of the acrylic polymer sat all.

Still further, Rosenski relates to "a pressure-sensitive adhesive which is used for paper products, and can be dispersed again in water when the paper product is recycled to give regenerated pulp". Thus, Rosenski's objective as well as design concept is different from those of the present invention which provides a pressure-sensitive adhesive simultaneously satisfying initial adhesion to dewy surfaces and a constant-load peeling property.

Accordingly, Rosenski et al provides a different formulation for a purpose completely different from that of the present invention and neither anticipates nor renders obvious the presently claimed invention.

In view of the above, Applicants submit that the present invention is neither anticipated

nor obvious over Iijima et al or Rosenski et al. Accordingly, Applicants respectfully request withdrawal of the rejection.

C. Regarding Kunihiro

Kunihiro was cited as disclosing an adhesive composition comprising a polyalkylene glycol within the claimed molecular weight range and an acrylic polymer. Although acknowledging that Kunihiro may not expressly teach a product prepared by the exact same process as recited in the claims, similar to the situation in Rosenski the Examiner considered the composition of Kunihiro et al to be the same as or an obvious variant of the claimed product absent evidence that the particular process of making results in a materially different product.

Applicants respectfully submit that Kunihiro et al does not disclose, teach or suggest the present invention as recited in independent claim 1.

Kunihiro does not disclose, teach or suggest the recited molecular weight of polyethylene glycol as in present claim 1. Specifically, Kunihiro describes the structural formulae of (poly)ethylene glycol and/or (poly)propylene glycol and describes that the alkylene oxide moiety has an n from 1 to 500. In the case where n is 500, the molecular weight of polyethylene glycol is 22,018 and that of polypropylene glycol is 29,018. These two values fall outside of the range of the molecular weight of 100,000 to 3,000,000 recited in present claim 1. There is no description of the molecular weight of the acrylic polymer at all.

Also, similar to Rosenski, the acrylic polymer of the composition of Kunihiro is obtained by polymerizing in the presence of a polyalkylene glycol. Therefore, Kunihrio also fails to

disclose, teach or suggest the element of present claim 1 that the polyalkylene glycol is incorporated in the form of an aqueous solution after the polymerization of the acrylic polymer.

Further, Applicants have conducted a replication experiment based on Example 5 of Kunihiro and the results are provided in the attached Supplemental Declaration, which shows that the resulting product of Kunihiro is different from the PSA of the present invention where the polyalkylene glycol is incorporated after polymerization of the acrylic polymer.

As shown in the Table at page 16 of the Supplemental Declaration, the wet-surface adhesive force of the product obtained from Example 5 of Kunihiro resulted in a low value as compared to the present invention. The reason is that, since polymerization is conducted under the state where polyethylene glycol is incorporated, the polyethylene glycol is adsorbed on the particle surface. Also, even when the materials are fabricated into a tape, the glycol exists also in the surface of the pressure-sensitive adhesive, raising the hydrophilic nature of the surface of the pressure-sensitive adhesive, whereby, when the tape is applied to the wet surface of an adherend, moisture exists between the adherend and the surface of the pressure-sensitive adhesive energetically stably. Namely, the moisture is not absorbed into the interior of the pressure-sensitive adhesive, and it is considered that a low wet-surface adhesive force resulted. This is the same result as in the cited reference on Rosenski, and the cause is considered to be the mechanistic demerit of the hydrophilic polymer incorporated prior to polymerization. Moreover, the fact that the molecular weight is as low as 1,000 is not preferable for wet-surface adhesive force.

In the present application, the objective is achieved by restricting the lower limit of the hydrophilic polymer to 100,000, and further by adding the polymer after polymerization, thus suppressing the migration of the hydrophilic polymer to the surface of the pressure-sensitive adhesive.

With respect to the adhesive force to wet-surfaces or the constant load peeling property relating to the objects of the present application, Kunihiro has no description at all, indicating that the purpose as well as the design concept is completely different between the two inventions.

In addition, Kunihiro states in Claim 1 "copolymers obtained via copolymerization in the presence of at least one of (poly)alklylene glycol di(meth)acrylate, (poly)alkylene glycol mono(meth)acrylate, (poly)ethylene glycol, and (poly)propylene glycol". Among them, however, the former two are reactive monomers, while the latter two are non-reactive additives. It would be difficult for one of ordinary skill in the art to arrive at the (poly)alkylene glycol that has the structure as well as the molecular weight defined in the present application from such a group in which reactive monomers and additives are mixed together.

Thus, it is concluded that the present invention is not anticipated nor rendered obvious by Kunihiro et al.

The aqueous dispersion type pressure-sensitive adhesive composition according to the invention of the present application, in which a poly(alkylene glycol) having a specified weight-average molecular weight is added after the polymerization of an acrylic polymer, is different from any of the cited references, which is supported by the experimental results obtained by the inventor in the attached Supplemental Declaration.

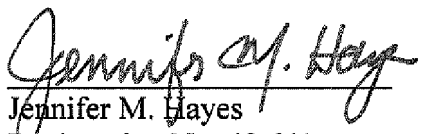
Accordingly, Applicants respectfully request withdrawal of the rejections.

III. Conclusion

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

Respectfully submitted,



Jennifer M. Hayes
Registration No. 40,641

SUGHRUE MION, PLLC
Telephone: (202) 293-7060
Facsimile: (202) 293-7860

WASHINGTON DC SUGHRUE/265550
65565
CUSTOMER NUMBER

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